# Unit-1 Introduction to Internet

## 1.1  Concepts of Internet

### Internet:

Internet is also a kind of network, which connects different computer networks. Internet is also called super-network or meta-network. This computer network is spread across different parts of the world. The internet combines two basic things, one is computers and another is connections. Together it is known as "**INTER**connections and **NET**work" that is **INTERNET**!

Internet comprises of various networks that include public, private, government, business, and academic sectors linked together using different electronic technologies. It interconnects global networks with local and vise-versa. The resources of Internet range in both information(including digital documents like image, video, text etc.) and services (including information sharing, email, video conferencing) domains.

Within the Internet there are some large and high speed computers that are used to store information. These computers are called servers. Many computers are connected with these servers. The connected computers with server to seek support are known as clients. Servers are connected, on land as well as across the oceans, through high capacity cables. These cables are known as backbones or information super-highway.

Computers in the network can be connected with some wire or may be with a special type of connection facility called wireless connectivity. The popular connections use phone line cables, optical fibers and satellite links. See figure 1.1 that demonstrates a conceptual diagram of the Internet.
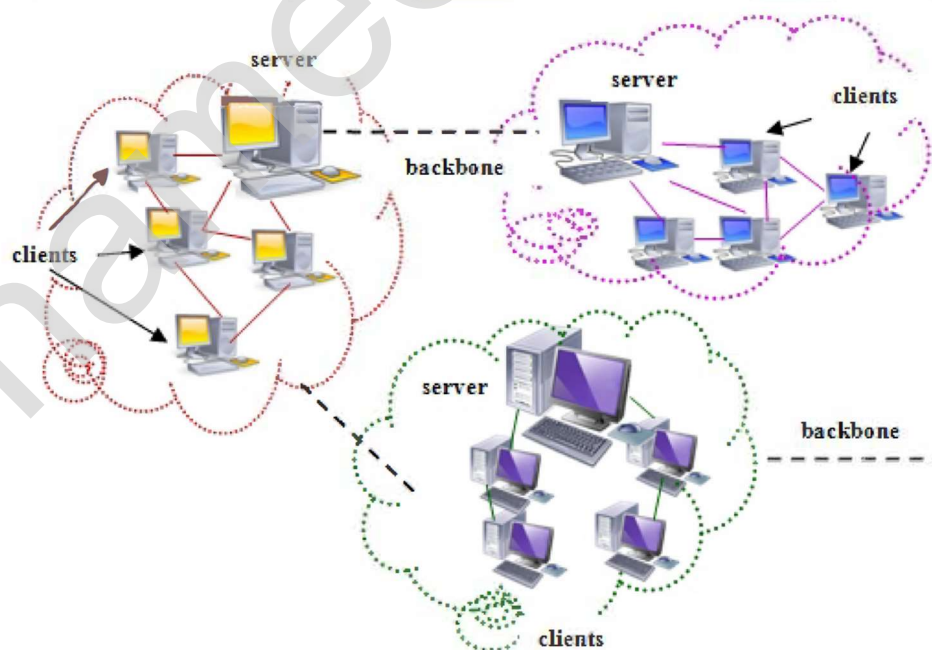
Figure 1.1: Internet

## Evolution of Internet

During late 1960s the Defense Advanced Research Projects Agency (DARPA) started a project to develop a communication protocol for computer network. This project (ARPANET) was funded by US military. The ARPANET was set of US military computers to communicate defense and security related information. This network used to send the data by splitting it into small packets through routers. E-mails were first used on this network.

In the middle of 1980's US National Science Foundation (NSF) developed NSFNET which provided the basic platform for communication service used for modern networking. Gradually, different protocols were invented and many organizations came into existence that dealt with internetworking. Some examples of other networks are 'Because Its Time NETwork' (BITNET) and 'Computer Science Network' (CSNET). Facilities called gateways were developed to connect BITNET with other networks, which allowed exchange of electronic mail, particularly for e-mail discussion lists. The ARPANET was dismantled in 1990.

## Internet Services

**Internet Services** allows us to access huge amount of information such as text, graphics, sound and software over the internet. Following diagram shows the four different categories of Internet Services.

### 1. Communication Services

There are various Communication Services available that offer exchange of information with individuals or groups. The following gives a brief introduction to these services:

- **Electronic Mail** is used to send electronic message over the internet.
- **Telnet** is used to log on to a remote computer that is attached to internet.
- **Newsgroup** offers a forum for people to discuss topics of common interests.
- **Internet Relay Chat (IRC)** allows the people from all over the world to communicate in real time.
- **Mailing Lists** is used to organize group of internet users to share common information through e-mail.
- **Internet Telephony (VoIP)** allows the internet users to talk across internet to any PC equipped to receive the call.
- **Instant Messaging** offers real time chat between individuals and group of people. E.g. Yahoo messenger, MSN messenger.

### 2. Information Retrieval Services

There exist several Information retrieval services offering easy access to information present on the internet. The following gives a brief introduction to these services:

- **File Transfer Protocol (FTP)** enable the users to transfer files.

- **Archie** is updated database of public FTP sites and their content. It helps to search a file by its name.
- **Gopher** is used to search, retrieve, and display documents on remote sites.
- **Very Easy Rodent Oriented Netwide Index to Computer Achieved (VERONICA)** is gopher-based resource. It allows access to the information resource stored on gopher's servers.

### 3. Web Services

Web services allow exchange of information between applications on the web. Using web services, applications can easily interact with each other. The web services are offered using concept of **Utility Computing.**

### 4. World Wide Web

WWW is also known as W3. It offers a way to access documents spread over the several servers over the internet. These documents may contain texts, graphics, audio, video, hyperlinks. The hyperlinks allow the users to navigate between the documents.

## Advantages of Internet

- **Flawless communication**: The Internet offers flawless and faster communication. It has covered the entire globe, and no matter where you are, you can communicate even from the remotest of the locations. Getting in touch with families and friends becomes easy through it. Not just getting in touch with loved ones, but businesses have also become more accessible through the Internet. Also, it is only due to the Internet that today we can work from home.
- **Online Education**: The Internet has made it possible for students sitting in the remotest of the areas to avail education. Many schools, educational institutions, and colleges are now conducting online classes for such students. Also, due to Covid-19, the students can continue with uninterrupted studies only because of the Internet.
- **E-commerce and Online Services**: Today, sitting at home, we can scroll all the products of an online store and order whatever we feel like. Also, small companies and people in business are taking advantage of the Internet to enter the global market. All of these are possible only because of the Internet. Artisans, craftsmen, etc., sitting in remote areas can now sell their art pieces through the Internet in the global market. Not just products, but you can also avail yourself of online services via the Internet. Booking a taxi, ordering food, or calling a mechanic has become a lot easier only because of it.
- **Abundant of Information**: The Internet provides a vital source of information. Search engines like Bing, Google, and Yahoo contain in-depth information on financial matters, government law and service, market information, economic affairs, technical information, educational

and academic issues, new ideas, and technical support. It offers information at various levels of study and covers everything from scholarly articles to ones directed at children.

- **Entertainment**: Entertainment is another popular reason for which people prefer the Internet. Also, it provides a medium through which fans can gain information on their favorite film stars, sportsperson, etc. After the pandemic, all the movies, web series, television content, sports events, and live performances of celebrities are available on OTT (over-the-top) platforms. The Internet has made these all possible and offers non-stop entertainment sitting at home through our mobiles, smart TVs, laptops, and tablets.

- **Social Networks**: Facebook, Twitter, and Instagram are some of the social network websites. These websites allow people with similar interests to come together and share information, photos, and videos. Besides being ideal for staying in touch with friends and families, these websites are also great for business endeavors. They offer the perfect platform for marketing and help to gain overseas customers also.

- **Online Banking**: Online businesses have led to online money transfers, and the online banking system has made this possible. With online banking services, receiving or transferring money and opening accounts, granting loans, etc., has also become possible. A physical presence at the bank is no longer required if you are availing of online banking services. The banks have also started their banking applications through which opening Fixed deposits, recurring deposits, issuing cheque books has become easier.

- **Video Calls and Web Conferencing**: If you miss your loved ones and wish to see them, you can make a video call through SKYPE or Whatsapp and talk to them face to face. If you reside in India, you can video call and talk and see anyone sitting in the USA with an internet connection. If physical meetings are not possible for business, you can use Google meet or Zoom to conduct web conferences. These platforms help you see and listen to your coworkers working overseas and share important files, documents, and screens if necessary.

- **Online Newspaper**: Most of the newspapers now have an online version so that people can find their likely newspaper any time anywhere without any cost. The online newspapers not just cover local or national news but also cover overseas news. Through the Internet, any news spreads like wildfire. Online newspapers save our environment because newspapers need paper and paper needs wood, and online newspapers reduce deforestation and cutting trees.

## Disadvantages of Internet

- **Internet Addiction**: The Internet has made it impossible for people to live without it. This clearly shows that people have become addicted to

the Internet. It has affected not just elders but kids also. Kids as old as two years today use mobile phones to watch online videos on apps like YouTube. The Internet has increased their screen time and restricted their mental growth.

- **Access to Wrong Information**: The Internet is available for everyone, and anyone can add information here. Hence the scope for wrong or false information arises. Everyone can run a website, and there are many free blogging platforms on the Internet so everyone can give information on the Internet. As a result, the Internet can possess wrong information, which is harmful to a user. It is one of the most important disadvantages of the Internet.

- **Theft of Personal Information**: When people use social networking websites or online banking services, they add their personal information like email ID, bank account number, credit card number, phone number, etc., in these places. A person expert in software or a hacker can easily retrieve this information and can cause a massive loss to the users. Hacker programs a harmful virus that gets into the computer system and destroys valuable data.

- **Spams**: The unnecessary emails, advertisements, calls that you receive every day are called spam. Sometimes these spam emails or calls can enter your system and make the user face many problems. Also, such spams are harassment for computer users and bad for the environment. This spam is stored in the inbox for many years and added to the server's storage space.

- **Virus Threat**: The virus is a program that damages the functioning of computer systems. It comes through the Internet and can crash the total system within seconds. Viruses and malware spread quickly through the Internet, and total data on the device can get corrupted. Many multinational companies have faced huge losses in the past due to viruses in the system. Cybersecurity today is one of the biggest concerns in front of the IT department. Many countries have passed specific laws for the same, but everything seems to be far-fetched today.

- **Sensitive Information**: The Internet contains a lot of sensitive information; which children must not access. Today children are surfing the Internet more than adults. Such sensitive information can have a negative impact on them and affect their mental well-being.

- **Wastage of Time**: It is easy to waste a lot of time on the Internet. You can start surfing and then realize far more time has passed than you expected. This also results in increased screen time, and because of which our memory power, especially kids, is reducing. With the growing Internet usage, we are not using our minds as much as we did when there was no internet. Earlier, we used to store a lot of information in our minds like phone numbers, addresses, PINs, etc., and we used to do simple math without using our phones, etc. But now we are entirely

dependent on the Internet for and everything. Also, increased screen time has led to decreased eyesight.

- **Obesity and Other Health Issues**: We all know that sitting for long hours can lead to obesity. If you are using the Internet non-stop, playing games, or spending too much time on social networking sites, it can lead to an unhealthy body and obesity. Carpal tunnel syndrome becomes common if too much time is spent in front of the computer. This syndrome can severely affect your body posture and result in lifelong health issues.